DOCUMENT RESUME

ED 176 895 PS 010 928

AUTHOR Seegmiller, Bonni R.; And Others
TITLE Personal, Socioeconomic, and Sibling Influences on Sex-Role Differentiation.
SPONS AGENCY National Inst. of Mental Health (DHEW), Rockville, Md.
PUB DATE [78]
GRANT NIMH-MH-26039
NOTE 56p.; For related document, see PS 020 925

EDRS PRICE MF01/PC03 Plus Postage.
DESCRIPTORS Age Differences; Birth Order; Ethnicity; Family Structure; *Individual Characteristics; Intelligence Quotient; Lower Class; Middle Class; *Preschool Children; Sex Differences; *Sex Role; *Siblings; *Socioeconomic Influences; Working Parents

ABSTRACT

The influences of personal, socioeconomic, and sibling characteristics on the sex-role differentiation of preschool children were investigated. Subjects included 446 lower- and middle-income boys and girls ranging in age from 3 to 5 years. The Peabody Picture Vocabulary Test was administered to each child to obtain a measure of IQ. Information regarding the children's other personal characteristics (age and sex), socioeconomic characteristics (social class, ethnicity, intactness of family, maternal and paternal employment, occupational status of mother's and father's jobs), and sibling characteristics (sibling sex, sibling constellation, total number of children, ordinal position) was obtained from school records and school staff members. A battery of sex role measures (Draw-A-Person, Nadleman Recall, Toy Preference, Occupational Preference, and Brown's IT tests) was administered to each child individually. Results showed that sex-role differentiation was already present in the 3-year-olds and that differences between the sexes increased with age. Findings also showed that sex-role differentiation was unrelated to IQ or to maternal employment variables. The hypothesis that socioeconomic factors are important determinants of sex-role differentiation was not supported. Data indicated that sex-role differentiation was most strongly affected by siblings, who had different effects depending upon their own sex, as well as by the sex and/or age of the child. Ordinal position and number of children in the family also influenced sex-role differentiation. (Author/JMB)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

U S DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

ED176895

Personal, Socioeconomic, and Sibling Influences on Sex-Role Differentiation

Bonni R. Seegmiller
Hunter College of the City University of New York
Barbara Suter
New York City
Noel Dunivant
New York University

This research was supported by the National Institute of Mental Health grant No. MH 26039 to Bonni R. Seegmiller. We wish to express our gratitude to all of the directors, teachers, and children who participated in the study.
Reprint requests should be sent to the first author at Hunter College, City University of New York, Box 1449, 695 Park Avenue, New York, N. Y. 10021.

PS 010928

Running Head: Personal, socioeconomic and sibling influences

Abstract

The influences of personal, socioeconomic, and sibling characteristics on the sex-role differentiation of preschool children were investigated. Subjects included 446 3-, 4-, and 5-year-old boys and girls sampled in approximately equal numbers from lower- and middle-income populations. Covariance structure analysis indicated that scores on the Draw-A-Person, Nadleman Recall, Toy Preference, Occupational Preference, and Brown's IT tests conformed to Jöreskog's congeneric test model; therefore, a maximally reliable weighted composite of the five tests was taken as the measure of sex-role differentiation. Analysis of variance was employed to assess the effects of personal (IQ, age, sex), socioeconomic (social class, maternal/paternal employment and occupational status, ethnicity, intactness of family), and sibling (number of older and younger brothers and sisters, sibling constellation, sibling sex, ordinal position, number of children in the family) characteristics. Overall, significant effects were obtained for the personal and sibling variables but not for the socioeconomic factors. The role of siblings in early sex-role differentiation is discussed in terms of social learning and cognitive developmental principles.

Personal, Socioeconomic, and Sibling Influences on Sex-Role Differentiation

Bonni R. Seegmiller
Hunter College of the City University of New York
Barbara Suter
New York City
Noel Dunivant
New York University

Although sex roles are perhaps the most pervasive, enduring, and earliest learned of all roles (Flerx, Fidler, & Rogers, 1976; Kohlberg, 1966), many questions remain concerning which specific factors affect the acquisition of such role learning. In attempting to explain sex-role differentiation, most theories make reference to environmental influences. Psychoanalytic theory (Freud, 1938/1905) posits that the identification that results from the child's resolution of the Oedipal Complex is influenced by the behavior and personality characteristics of the parents. According to Lynn's theory (1966), the major task of sex-role differentiation consists of the boy's finding the proper goal objects, and the girl's imitation of the mother. Children accomplish this by using information available from the environment and approaching it as a problem to be solved. Learning theory (Mishel, 1966) emphasizes the causal role of direct reinforcements and punishments from the agents in the environment in shaping sex-role identity. In addition to instrumental conditioning, imitation and observational learning of various environmental aspects are considered important. Role theory

(Parsons & Bales, 1955) also describes how children become aware of the differences between societally-defined expressive and instrumental roles within a particular environmental context, the family. Only Kohlberg's Cognitive Developmental theory (1966) relegates environmental factors to a mere facilitating role. According to this theory, sex-role development results from cognitive reorganization that depends upon disequilibrating events, which are not directly related to sex-role dimensions.

Previous investigations have examined a number of environmentally related variables in relation to sex roles in addition to the influences of several personal characteristics. These have included studies of the effects of various socioeconomic and sibling characteristics on sex-role differentiation. Some representative studies are reviewed here.

Personal Characteristics

Intraindividual variables comprise this category. They are most typically used as descriptors (age, sex, IQ) but should also be recognized as possibly serving as stimuli to others. (For example, Block, 1976, and Seavey, Katz, and Zalk, 1975, have shown that children of different sexes evoke different responses from adults.)

IQ. Although the correlation between adolescent or adult general intelligence and same-sex typing is negative (Terman & Miles, 1936; Gough, 1952), a number of studies (Kohlberg, 1966; Kohlberg & Zigler, 1966; Lefkowitz, 1962; Terman, 1926) have shown a positive relation for children between 4- and 10- years of age. However, sex typing and less global abilities like creativity and

analytic thinking are frequently found to be negatively related (Maccoby, 1966). That is, cross-sex typing is associated with high ability for these cognitive skills.

Age. Studies of changes in sex-role differentiation as a function of age have yielded consistent results. Sex-role differentiation is a process that begins very early in life as is evidenced by the research on hermaphrodites and pseudohermaphrodites. Attempted sex reassignments after the age of two years usually result in severe psychological stress (Hampson, 1965; Mussen, 1969). By age three, children have developed differential toy preferences (Flerx, Fidler, & Rogers, 1976; Hartup & Zook, 1960; Kohlberg, 1966; Nadleman, 1974; Schell & Silber, 1968; Garrett, Cherry, Kahn, & Diepold, Note 1; Suter, Seegmiller, & Dunivant, Note 2), begin to have stereotyped occupational aspirations (Papalia & Tennent, 1975), and differentially reinforce their peers for same- as opposed to cross-sex behaviors (Fagot & Patterson, 1969). Preschoolers also show sex typing on "verbal-objective" measures such as Brown's (1956) IT Scale for Children (Brown, 1956, 1957; Hartup & Zook, 1960; Rabban, 1950; Suter, Seegmiller, & Dunivant, Note 2).

Sex. Most studies to date have shown boys to be more sex typed than girls (e.g., Bieliauskas, 1960; Brown, 1956, 1957; Hartup & Moore, 1960; Hartup & Zook, 1960; Kohlberg, 1966; Rabban, 1950), with boys showing their preferences earlier (Hall & Keith, 1964; Schell & Silber, 1968; Ward, 1968). Some conflicting findings have been noted (e.g., Goldberg, Note 3); but these are probably attributable to the characteristics of the particular measures used in those studies.

Socioeconomic Characteristics

Social Class. Social class has been variously defined in terms of a person's educational level, income, occupational status, and other socioeconomic characteristics. This section reviews studies that have considered the effects of social class, in terms of the many ways that it has been defined, on sex-role development. The other sections grouped under "Socioeconomic Characteristics" (Ethnicity, Intactness, Maternal/Paternal Employment) deal with the more specific aspects of this category.

Many writers have noted that sex-role development is channeled by one's social class membership (Hall & Keith, 1964; Kinsey, Pomeroy, & Martin, 1948). Narrower definitions of sex typing and more rigid role prescriptions in the lower class (Adorno, Frenkel-Brunswick, Levinson, & Sanford, 1950; Parsons, 1965; Rabban, 1950), along with the more similar treatment of males and females in the upper social classes (Mussen, 1969; Parsons, 1965) lead to the prediction that children from lower-class homes will be more sex-typed than those from middle-class homes. The research findings, however, have been contradictory.

Rabban's (1950) study showed that lower (working)- class children understood sex-role differences earlier and were more sex typed in their behavior than middle-class children. Bronfenbrenner (1958), Parsons (1942), and Sanford (1958) also reported less sex typing in children from middle-class homes (in which the parents were better educated). Hall and Keith (1964), using Brown's (1957) IT Scale for Children (ITSC), found a significant sex by social class interaction: Lower-class boys made more sex-stereotyped

choices than middle-class boys, but no differences were found between lower- and middle-class girls. Their criteria for social-class categorization were place of residency and father's occupation.

Lefkowitz's (1962) and Sears' (1951) results were in the direction opposite to those expected. A greater degree of sex-typed choices on Lefkowitz's Games and Activities Preference List was found in children from the upper social status as measured by father's occupational status. In the Sears study, boys from father-absent homes (taken as an indicator of lower social class) were less aggressive (i. e., less masculine) than boys whose fathers were in the home.

On the other hand, a number of studies have shown no differences between lower- and middle-income children. Brown (1957), who defined social class by father's occupation, found no differences in ITSC performance between upper-, middle-, and lower-income groups. Hartup and Zook (1960), using the ITSC, and Suter, Seegmiller, and Dunivant (Note 2), using the ITSC, Draw-A-Person, Nadleman Recall Test, DeLucia Toy Preference, and the Occupational Preference Test, defined social class in terms of type of preschool attended. Subjects were designated "middle class" if they attended a private nursery school and "lower class" if they were in public daycare. In neither study were there social class differences on any of the sex-role measures.

Ethnicity. In most studies, ethnicity has been confounded with social class. Consequently, ethnicity is classified as a social class, rather than as a personal characteristic in this paper. Thompson and McCandless (1970) studied lower-class Black

and White males and females. They found that Black males showed more preference for the feminine role than did White males, and White girls preferred the masculine role more than did Black girls. Thomas (1966) compared deprived Blacks with nondeprived Blacks. The feminine role was found to have more prestige in the deprived Black group; the masculine role was more prestigious in White nondeprived subjects.

Intactness of Family. Effects of the parents' presence on sex-role identification have been investigated in a number of studies. Most have been concerned with the father's absence and the consequent lack of a masculine role model for the male child. Thus, both Psychoanalytic and Social Learning theories predict less masculinity in boys without fathers. Some of the literature supports this contention (Bach, 1945; Biller, 1974; Lynn, 1974; Lynn & Sawrey, 1958; Sears, Pintler, & Sears, 1946; Sears, 1951). Santrock (1970) and Smith (Note 4) stress that some qualification is needed depending upon such factors as the age of the child when the absence occurs, and the reason for the separation. Also, Biller's (1969) study showed that father absence strongly affected only some aspects of sex-role differentiation, most notably, sex-role orientation. Sex-role preference was only moderately affected, and sex-role adoption, not at all. Herzog and Sudia (1973) maintain that the effects of father absence on sex-role development in boys has not been well established. They suggest that the lower masculinity in such boys is actually due to confounds from social-class effects, a contention that is supported by Biller's (1974) study.

Contrary to predictions made by Role theory (Johnson, 1963; Parsons, 1965), which stresses the reciprocal relation between the child and opposite-sex parent, father absence has not been shown to influence sex-role differentiation in young girls (Hetherington, 1966; Lynn, 1966, 1969, 1974). In addition, Marantz and Mansfield (1977) found no relation between father's participation in tasks and daughter's sex-role differentiation.

Maternal Employment. Social Learning theory views working mothers as providing different role models for their children than mothers who are not employed. The female child, having the mother as her primary role model, should be more affected; she should show a lesser degree of sex-role stereotyping than daughters of mothers who do not work (Hoffman, 1974; Katz, Bowermaster, Jacobson, & Kessell, 1977; Seegmiller, Note 5). Although there have been some exceptions, the results of most studies have been in the predicted direction. Baruch (1972) found that college-aged daughters of working mothers viewed women as more competent. Vogel, Broverman, Broverman, Clarkson, & Rosenkrantz's (1960) data showed that having an employed mother resulted in less rigidly defined roles for both males and females of college age, although the effect was stronger for the female subjects. In an elementary school-aged sample, Hartley (1959, 1960) found that daughters of employed mothers were far more likely to aspire to non-traditional occupations than those whose mothers did not work. In Hartley's 1961 study, girls of working mothers were less likely to stereotype activities, places, and objects. Miller (1975), and Perloff (1977) also found similar differences between kindergarten-aged

children of those women who worked and those who did not. Marantz and Mansfield (1977) found that amount of stereotyping was maximally influenced by maternal work status between seven and eight years of age.

Marantz and Mansfield (1977), however, did not find differences between 5-6 and 9 -11-year-old subjects as a function of maternal work status, nor did Thompson (1975), who studied children between 2- and 3-years of age. Rodgon, Grawlewski, and Hetzel (Note 6) found that children's attitudes were unrelated to their mother's work status. Additionally, a number of Hartley's studies (1959, 1960, 1964) have shown that girls with working mothers have the same primarily domestic definitions of adult maternal roles as do girls with nonworking mothers. As Marantz and Mansfield (1977) and Seegmiller (Note 5, Note 7) have suggested, the age of the child (when tested, as well as when the mother worked) may act as a mediating variable.

Sibling Characteristics

Although studies of sibling influences on sex-role differentiation have been numerous (Sutton-Smith & Rosenberg, 1970), the nature of the effects is not yet completely clear.

Ordinal Position. Since only-children and firstborns are more thoroughly socialized than laterborns (Bardwick, 1971; Schacter, 1959), they might be expected to be more sex typed (MacDonald, 1969). Brown (1956) confirmed this expectation, especially for boys, as did Faula and Smith (1956) who found that only-children's play choices were more stereotyped than children with older like-sex siblings. On the other hand, Sears

(1951) found that firstborns (boys and girls) engaged in less aggressive, active, and rough doll play, and Laosa and Brophy (1972) failed to find a significant sex-by-birth order interaction on the ITSC, the Draw-A-Person, various measures of toy-, game-, occupational-, and peer-preferences, or on teacher ratings.

Sibling Constellation and Sibling Sex. Most attempts at relating sibling variables to sex-role differentiation have recognized the importance of taking birth order, sex of child, and sex of siblings into account (e.g., Bigner, 1972; Biller, 1968; Brim, 1958; Koch, 1955, 1956a, 1956b, 1956c; Sutton-Smith & Rosenberg, 1956, 1970; Sutton-Smith, Roberts, & Rosenberg, 1964; Vroegh, 1971). However, the findings in regard to these variables are not entirely consistent.

Hartley (1964) and Sutton-Smith, Roberts, and Rosenberg (1964) found that children with like-sex siblings tended to give sex-appropriate preferences for games and play items. In the latter study, 6-, 10-, and 20-year-old males with older or younger sisters were less masculine and more feminine (except at age 10) than boys with brothers. Girls with sisters were not more feminine than girls with brothers, who were more masculine than girls with sisters. Brim's (1958) data confirmed this increased femininity in boys with (older) sisters, and increased masculine repertoire in girls with (older) brothers. Brown's (1956) data showed boys with brothers to be more masculine than boys with sisters, but there were no differences for females that were dependent on their sibling's sex. Koch (1956a, 1956b, 1956c) reported similar findings, although these were qualified by "spacing of children."

Bigner (1972) found that males with older brothers were more masculine than males with older sisters, and females with older sisters were more feminine than females with older brothers. Subjects with older brothers were more masculine than singletons, while those with older sisters did not differ from singletons. Koch (1955, 1956a, 1956b) also found positive relations between sex of sibling and masculinity/femininity, although, as mentioned above, the age spacing and ordinal position of the children were most important.

On the other hand, Vroegh (1971), assessing gender-role identity by teacher and peer ratings, found very few significant effects attributable to either sex of siblings or sex of older sibling. The only significant differences were that seventh- and eighth-grade females with only sisters were rated by their teachers as more feminine than girls with only brothers, but equally feminine as girls who had both brothers and sisters. Second- and third-grade females with both brothers and sisters were rated by teachers and peers as more feminine. Children in these grades who were themselves oldest siblings were rated by their teachers as more feminine. Vroegh (1971) concluded that neither sex of siblings nor sex of older siblings consistently affected sex-role identity.

Number of Siblings. The absolute number of children in the family has been shown by some researchers to influence sex-role differentiation. Children growing up in larger families were more stereotyped than those from families with fewer children, perhaps because their mothers provided more traditional models (Blake, 1960; Clarkson, Vogel, Broverman, Broverman, & Rosenkrantz,

1970; Davis, 1967).

As is evident from the above review, studies that have attempted to relate sex-role differentiation to variables that characterize the child's world have yielded inconsistent results. This may be at least partially attributable to factors such as the use of small samples, different age groups, and different measures in the various studies. No study has examined how a number of these characteristics might relate to sex-role differentiation within the same sample. Additionally, estimates of sex-role differentiation were usually based upon a single measure within any study, with little or no information provided as to its reliability or validity.

Given the theoretical emphasis on the environment, as well as the consistent finding that sex-role differentiation begins at an early age, it is somewhat surprising that more attention has not been paid to environmental determinants of sex-role differentiation during the early years of a child's life. The purpose of the present study was to examine the effects of several environmental and personal factors on sex-role development in a large sample of preschoolers, as measured by a composite score based on five sex-role tests. The independent variables studied included personal factors (sex, age, IQ), socioeconomic factors (social class, mother employed, father employed, status of mother's and father's occupation, intactness of family, and ethnicity), and sibling factors (number of older and younger brothers and sisters, sibling constellation, sibling sex, ordinal position, and total number of children). We hypothesized that all of these variables

would relate to sex-role differentiation in 3- to 5-year olds, since this formative period would be a time when the child would be especially susceptible to environmental influences. However, in view of previous studies, we expected that these effects might vary as a function of the sex and/or age of the child.

We are using the term "sex-role differentiation" in its most generic sense to refer to the process of learning what the culture considers to be most or exclusively appropriate for one sex or the other, and to the content, or end-product of such learning. Thus, the term as used here encompasses diverse constructs variously referred to as "sex-role identification," "sex-role adoption," "sex-role knowledge," "sex-role orientation," "sex-role preference," "sex-role standards," "sex typing," etc. Although we recognize the distinctions that may be made between these (Seegmiller, Dunivant, & Suter, Note 8), we have adopted the term "sex-role differentiation in this paper for ease of exposition.

Method

Subjects

A total of 446 children in ten 3-year-old, eight 4-year-old, and six 5-year-old classes in nine schools in New York City participated in the study. Each of them was tested on at least one of the five sex-role measures. Half of the classes at each age level were located in lower-income level schools (public daycare centers with a sliding fee scale) while half were in middle-income level schools (private nurseries with fees ranging from $550 to $650 for ten months). The 226 males and 220 females were almost equally represented in the two types of schools and three age

groups, as has been described in detail in Seegmiller, et. al. (Note 8).

Measures of Personal Characteristics

Information regarding personal, socioeconomic, and sibling characteristics was obtained from school records and members of the school staff, with written and oral information cross-checked for accuracy where feasible. Complete information as to these characteristics was not available for all subjects, as is reflected in the varying N's for the different analyses. What follows is a general description of the sample in regard to each of these variables. A more detailed description may be found in Seegmiller et. al. (Note 8).

Sex. The sample was 51% male, 49% female.

Age Group. Children were enrolled in three-, four-, or five-year-old classes, which comprise the three age groups.

IQ. The Peabody Picture Vocabulary test was administered as part of the test battery to be described below. For the analyses using grouped data, four groups were distinguished: (1) IQ <85; (2) $85>IQ<100$; (3) $100>IQ<115$; (4) $IQ>115$.

Measures of Socioeconomic Characteristics

Social Class. The sample had initially been selected so as to equally represent lower- and middle-class schools, as described under Subjects (See also Seegmiller, et. al., Note 8).

Child Ethnicity. The ethnic composition of the sample was 43%, White; 31%, Black; and the remaining 16% classified as "Other."

Intactness of Family. One parent was present in the homes of 47% of the sample. Both parents were present in 53% of the homes.

Mother Employed. Information was available for 436 subjects. The mothers of 40% of the children were not working, while the remaining 60% held some form of paid position for at least 15 hours per week.

Occupational Status of Mother's Job. The Occupational Subscale of Hollingshead's Two Factor Index of Social Position (Note 10) was used. Of the 269 mothers for whom there was information, 25% fell into scale categories I or II (Professional, Managerial); 58% were categorized as II or Iv (Blue, White Collar); and 17% were classified as V, VI, and VII (Semi- or Unskilled). The difference in N's between this variable and the mother employed variable reflects the fact that information on the type of job a woman held might not be available, even though it was known that she was working; additionally, women who were not working, but for whom an occupation was available were included here.

Father Employed. Information was available for only 281, or 65% of the fathers; 80% of these were employed. It should be noted here that we had no information on 165 (35%) of the fathers. Most of these were fathers of children in lower-income schools and were not present in the homes.

Occupational Status of Father's Job. Classification was accomplished using the same scale as had been used for the mother. Only 235 occupations were available for classification. Of these, 57% were in I or II (Professional, Managerial); 25% were in III or IV (White or Blue Collar); and 18% were in V, VI, or VII (Semi-, or Unskilled) professions. No occupational information was available for 211 of the fathers.

Measures of Sibling Characteristics

The percentages of children having zero to five younger brothers, younger sisters, older brothers, or older sisters was obtained, as well as the total number of brothers and total number of sisters for each child.

Sibling Sex. The breakdown was as follows: Only children: 46% of the boys, 55% of the girls. Sisters but no brothers: 24% of the boys, 22% of the girls. Brothers but no sisters: 19% of the boys, 12% of the girls. Equal percentages of boys and girls (11%) had both brothers and sisters. Said another way, 24% of the boys had only same-, while 30% had cross- or mixed-sex siblings. For the girls, 12% had only same-sex siblings, while 33% had cross- or mixed-sex siblings.

Sibling Constellation. This variable simultaneously took into account both sex of the siblings, and whether they were older or younger.

The most frequent constellations were only (46% boys, 55% girls), older brother (OB) (12% boys, 16% girls), younger brother (YB) (10% boys, 10% girls), younger brother and older brother (YBOB) (2% boys, 0% girls), older sister (OS) (11% boys, 15% girls), younger sister (YS) (8% boys, 15% girls), younger sister and older sister (YSOS) (1% boys, 1% girls), and older brother and older sister (OBOS) (8% boys, 11% girls).

Total Number of Children in Family. Fifty percent of the sample came from one-child families, 33% from families in which there were two children, and 17% from families with three or more children.

Ordinal Position. The sample was 65% "onlies" or firstborns, 22%, secondborns; and 13%, third- or laterborns.

Sex-Role Measures

The battery of tests consisted of five sex-role measures (full details on administration and scoring may be found in Seegmiller, et. al., Note 8). All tests were scaled so that a high score indicated greater "masculinity." (This term is used operationally throughout this paper to mean a greater number of masculine choices.)

1. Draw-A-Person Test (DAP): The child was asked to draw a person and then to draw a person of the opposite sex. The test was scored "2" if a male was drawn first, and "1", if a female was drawn first (possible range: 1 to 2).

2. Occupational Preference Test (OPT): Children were asked to give three choices of what they wanted to be when they grew up. Each occupation had been scaled from 1 (traditionally feminine) to 5 (traditionally masculine) on the basis of ratings by judges. To compute a score for each child, the scale values for each of the chosen occupations were summed and divided by the number of occupational choices volunteered. (possible range: 1 to 5).

3. Nadleman Recall Test (NRT): In this modification of Nadleman's (1973) procedure, each child was presented with pictures of eight masculine and eight feminine items and had to immediately recall the items. The score used for this test was the relative dominance of masculine over feminine items recalled. The formula used for scoring was

$$\frac{\#\text{ of masculine items recalled} - \#\text{ of feminine items recalled}}{\#\text{ of masculine items} + \#\text{ of feminine items recalled}}$$

(possible range: -1 to +1).

4. Toy Preference Test (TPT): In this modification of DeLucia's (1963) test, subjects were shown pictures of 24 pairs of masculine and feminine toys and were asked to specify which a pictured little girl (for girls) or boy (for boys) would like to play with. Choosing the more masculine toy of each pair earned the child one point (possible range: 0 to 24).

5. IT Test (BIT): Biller's (1968) modification of Brown's (1956) procedure was used to control for the masculine appearance of "IT"; i. e., subjects were shown a line drawing of a face ("the child") rather than "IT". The test consisted of masculine and feminine toys, peers, and activities, and the subject was asked to make a choice for "the child" from among a series of pictures. Scores could range from 0 (all feminine choices) to 84 (all masculine choices).

6. Composite Score: Since we expected the five tests to measure the same basic dimension of sex-role development, Jöreskog's (1970) covariance structure analysis was used to evaluate the hypothesis that the tests were congeneric. According to Jöreskog (1971), congeneric tests have perfect correlations among true scores and thus measure the same psychological attribute. However, congeneric tests need not satisfy the traditional psychometric requirements for equivalence or parallelism (Gulliksen, 1968), since they may differ in origins, units of measurement, and standard errors.

In order to determine if the five sex-role tests used in this study --DAP($\underline{x}_1$), OPT ($\underline{x}_2$), NRT ($\underline{x}_3$), TPT ($\underline{x}_4$), and BIT ($\underline{x}_5$)-- constituted a set of congeneric tests, we submitted the matrix of

intercorrelations among the tests to the Analysis of COVariance Structures --ACOVS (Jöreskog, Gruvaeus, & van Thillo, 1970) program, in order to obtain maximum likelihood estimates of the $\underset{\sim}{\beta}_1$, $\underset{\sim}{\sigma}_{e_1}^2$, and $\underset{\sim}{\rho}_{11}$. Correlations and standard scores were used throughout, since we did not want variance differences among the variables to influence their relative contributions to the linear composite. The value of χ^2 for the test of congenerism was 3.41 with 5 degrees of freedom which has a probability value of less than .60. This result means that there is not sufficient evidence to reject the null hypothesis that the tests are congeneric. For this model, the maximum likelihood estimates of the parameters were $\hat{\underset{\sim}{\beta}}' =$ (.525, .686, .402, .548, .667) and dia $\hat{\underset{\sim}{\Sigma}}_{ee} =$ (.724, .530, .839, .701, .555). Since the $\underset{\sim}{x}_1$'s were standardized in this study, the ML estimate of the reliability of each test if $\hat{\underset{\sim}{\beta}}_1^2$.

The fact that none of the individual tests has a reliability estimate as large as .50 supports our opinion at the outset that analyses of environmental influences of sex-role development be based on a composite rather than on the less reliable individual sex-role tests. The vector of weights for computing the composite score was estimated to be $\hat{\underset{\sim}{\alpha}}' =$ (.725, 1.294, .479, .782, 1.207). The reliability of this composite, which has maximum reliability of all weighted linear combinations of the five tests under the assumptions of the stated model, is .72. This value is, of course, an index of the internal consistency of the five tests.

Although it would be preferable to use a measure of sex-role development with greater reliability, our initial review of the literature indicated that these five tests were among the best

available. In general, measurement error in the dependent variable introduces "noise" into the system with the effect that the power of statistical tests is lowered. Estimates of effects in analysis of variance and regression coefficients in multiple regression remain unbiased, but their standard errors are increased so that larger sample sizes are required to detect nonzero population effects. The fact that the N for this study is very large compared to most investigations on this subject greatly diminishes the problem introduced by a somewhat unrelaible dependent variable. In fact, in this study, the power of the analyses of variance to detect a significant environmental effect that explained only one percent of the sex-role composite variance averaged .80 for all personal, socioeconomic, and sibling variables investigated (Cohen, 1977). For all these reasons, the composite will be used in reporting results.

Procedure

Subjects were tested individually in a room at their school that had temporarily been given over for this purpose. Half of the children of each sex were tested by same-, half by opposite-sex testers who were known to the children. The test battery took about 40 minutes to administer, usually in one, although sometimes in two or three sittings, depending upon the attention span of the child.

Results

Preliminary analyses indicated no significant differences attributable to tester sex. Therefore, data were collapsed across these categories for all analyses presented here.

The effects of social class, sex, and age on sex-role differentiation were assessed by a 2 (social class) x 2 (sex) x 3 (age) factorial analysis of variance on the maximally reliable composite z score. The effects of the other personal, socioeconomic, and sibling characteristics on sex-role differentiation were examined through a series of 3-way factorial analyses of variance on the maximally reliable composite z score. The factors in each of these ANOVAs were 2(sex) x 3 (age) x n (number of levels in the particular independent variable under consideration). In other words, for each independent variable, a least squares ANOVA was performed so that the effects of the independent variable was adjusted for the main effects of sex and age. Table 1 shows

Insert Table 1 about here

for each independent variable, the mean maximally reliable composite z score for each group as classified on that variable. Table 2 summarizes the results of the ANOVAs. In all cases,

Insert Table 2 about here

Fisher's "protected t" (Cohen & Cohen, 1975) was used to test mean differences, which, when reported as significant, reached at least the .05 level. (Except where noted to the contrary, all cited differences were significant.)

It should be noted here that although age, and sex were included as factors in all of the ANOVAs, results pertinent to their main effects as well as to the interaction between them are discussed once, under the "Personal Characteristics" section.

The reader should keep these findings in mind throughout the presentation of the other results, but they are mentioned in other parts of the results section only as they interact significantly with the independent variable under discussion (See Note 2, Table 2).

Personal Characteristics

The results of the social class x sex x age ANOVA show that the main effect for age is not significant, F (2,390) = 1.06, $p > .05$. However, the analysis reveals a significant main effect of sex, F (1,390) = 515.71, $p < .001$, indicating that boys (M = +.47) gave more masculine responses than girls (M = -.47). A significant sex x age interaction, F (2,390) = 9.32, $p < .001$, indicates that the mean difference between boys and girls (while significant at all three ages) was greater at the 5-year level (+.57 vs. -.64) than at the 3- (+.40 vs. -.38) or 4-year level (+.47 vs. -.41). As shown in Table 2 (See Note 2), the main effect for sex was significant in all of the ANOVAs and the sex x age interaction was significant for all variables other than father employed.

The analysis with IQ as the independent variable showed that there were no significant differences in sex-role differentiation that could be attributed to the effects of IQ. This was true regardless of the sex and/or the age of the subject. (A preliminary analysis showed no sex or age differences in IQ).

Socioeconomic Characteristics

The ANOVAs on the socioeconomic characteristics taken as

independent variables revealed that only one effect, the 2-way interaction between father employed x age of child, was significant, F (2,245) = 4.67, $p < .001$, indicating that whether or not the father was employed had different effects depending upon the age, or birthyear of the child. Although 3 year olds whose fathers worked did not differ from 3 year olds whose fathers did not work (M = -.02 vs. -.03), 4 year olds with employed fathers were less masculine than those with unemployed fathers (M = .00 vs. .18). In our 5-year-old sample, children whose fathers worked were more masculine than children whose fathers were not working (M =-.24 vs. .06). The children whose fathers worked manifested the same level of sex-role differentiation regardless of age, while for those with unemployed fathers, all age groups differed significantly.

None of the other socioeconomic characteristics (social class, ethnicity, intactness of family, whether the mother worked, occupational status of the mother's and the father's job) was significantly related to sex-role differentiation in these preschoolers, either as main effects or in interaction with sex and/or age.

Sibling Characteristics

These six analyses showed no significant main effect of any of the sibling characteristics (See Table 2), reflecting the fact that, overall, the number of brothers, number of sisters, total number of children, sibling constellation, sibling sex, and ordinal position did not by themselves affect sex-role differentiation. However, as the means in Table 1 suggest, and as the results in Table 2 confirm, five of the two-way interactions between sibling

characteristics and sex and/or age were significant. These were number of sisters x sex, sibling sex x sex, sibling sex x age, number of children x age, and ordinal position x age. No analysis revealed significant 3- or 4-way interactions. The significant interaction between total number of sisters and sex (of the subject), F (2,385) = 3.26, $p < .05$, indicated that the number of sisters affected boys more than it did girls. Although boys, regardless of the number of sisters they had, were more masculine than girls, the difference in masculinity scores between boys with two or more sisters (M = .23) and those with no (M = .50) or only one (M = .49) sister was greater than that between girls with two or more (M =-.36) and one (M = -.41), or no (M = -.49) sisters. The effects of being a singleton (OC), having only brothers (OB), only sisters (OS), or both brothers and sisters also varied as a function of the sex of the child, as indicated by the significant interaction between sibling sex and sex of child, F (3,379) = 3.20, $p < .05$. While the significant main effect for child sex showed that overall boys were more masculine than girls, the significant interaction between child sex and sibling sex indicated that boys and girls who either had no siblings (OC) (M for boys = .49; for girls = -.51) or only brothers (OB) (M for boys = .54; for girls = -.53) differed more than boys and girls with only sisters (OS) (M for boys = .40; for girls = .32) or with both brothers and sisters (BS) (M for boys = .38; for girls = -.46). That is, boys who had no siblings or male siblings exclusively, showed the greatest amount of male stereotyping, while singleton girls and (OB) girls made the fewest masculine choices

and were thus the most feminine. OS boys (M = .40), and girls (M = -.32), were the least masculine, and feminine, respectively. OC boys were more masculine than OS and BS boys but did not differ from OB boys. For the girls, the only significant differences were that the OS group gave fewer feminine responses than either the OB and OC girls.

Differences between the sibling sex groups varied as a function of the age of the child, as the significant sibling sex x age interaction indicates, F (6,379) =2.74, p <.001. At age 3, the OC group (M = .08) was more masculine than the OB (M = -.10) or OS (M = -.11) subjects, while OC and BS (M =.05) subjects did not differ. Differences between BS and OB, and BS and OS groups were similar to those of OC children, but these were not significant. For the 4 year olds, OC subjects (M =-.05) were less masculine than the OB subjects (M = .10), and the BS group (M = .16) subjects. The four groups were most similar at age 5: None of the differences between groups of this age were significant. Overall, 4-year-old OS and OB subjects made more masculine choices than their 3-year-old counterparts, while 4-year-old OC subjects made fewer such choices than the 3-year-old OC children. BS subjects were very similar to the OC subjects, but the decrease from 3- to 4- for BS subjects just failed to meet conventional significance requirements. None of the mean differences between the comparable 4- and 5-year-old groups were significant. Except for the OC subjects, the differences between comparable 3- and 5-year-old groups were not significant. In fact, 5 year olds were more similar to their 3-year-old counterparts than were the

4 year olds. OC 5 year olds were significantly less masculine than OC 3 year olds.

The number of children in the family differentially affected sex-role differentiation as a function of the age of the child, as indicated by the significant total number of children x age interaction, F (4,385) = 2.64, $p < .05$. The 3-year-old singleton children (M = .08) were significantly more masculine in their responses than those from families with two (M = -.10) or more (M = -.07) children; these latter two groups of 3 year olds did not differ from each other. Two of the 4-year-old groups differed significantly from the comparable 3-year-old groups. The singletons at age 4 were less masculine (M = -.06), while the 4-year-old subjects from two-child families (M =.09) were more masculine than the 3 year olds in their respective groups. The difference between these two groups at age 4 was also significant; neither, however, differed from the 4 year olds from families with three or more children (M = .04). The 5-year-old groups did not differ from each other, or from the 4 year olds.

Ordinal position also affected sex-role differentiation as a function of the age of the child, F (4,385) = 2.64, $p < .05$. For the 3 year olds, firstborns had the highest masculine scores (M = .05); they differed from the 3 year olds from two-child (M = .13) but not from three-or-more-child (M = .01) families. The same pattern of significant differences was evident for the 5 year olds, although for that age group, the singletons were the least masculine (M = -.09) while the children from two-child child families were most masculine (M = .12). There were no

significant differences between the 4-year-old groups. Comparisons across age levels showed that the decrease with age in male choices for firstborns was significant between the 3- and 4-year olds, and the 4- and 5-year olds. On the other hand, the number of masculine choices made by subjects from two-child families increased significantly from age 3 to age 4. The scores of subjects from families with three or more children remained stable across the three age levels.

Discussion

The findings of the present investigation provide only partial support for the hypothesis that various aspects of the environment and personal characteristics affect sex-role differentiation in 3- to 5-year-old children. Some of the variables had rather strong effects on sex-role differentiation while others had none at all. The finding that sex-role differentiation is already present in the youngest of our preschool sample is consistent with the results of others (Flerx, Fidler, & Rogers, 1976; Hall & Keith, 1964; Hartup & Zook, 1960; Kohlberg, 1966; Nadleman, 1974; Papalia & Tennent, 1975; Schell & Silber, 1968), as is the finding that the differences between the sexes increased with age (Bieliauskas, 1960; Brown, 1956, 1957; Hartup & Moore, 1963; Ward, 1968). Thus, although these significant sex and sex x age differences are not unique to this study, they replicate the results of others using a much larger sample than has been studied previously. Further, since the dependent variable used in the study was based on five sex-role measures, we have taken a step toward strengthening the findings in light of the psychometric

problems involved in using "verbal-objective" measures (Brush & Goldberg, 1978; Goldberg, Note 3; Seegmiller, Note 9; Dunivant, Note 11).

Previous work linking sex-role differentiation and IQ has been inconclusive (Borstelmann, 1961; Kohlberg & Zigler, 1966). That IQ was unrelated to sex-role differentiation in our sample of preschoolers could possibly be due to a number of different factors, e.g., the particular tasks used, the scoring system, the ages and/or other characteristics of the subjects; or it may be that the rate of sex-role learning in fact does not vary as a function of cognitive ability (as measured by the PVT) in contrast to what Kohlberg (1966) has suggested. Further studies must elucidate the relations between these two variables, perhaps using different measures of sex roles and of cognitive ability (including mental age in place of IQ).

The findings of the present study did not support the hypothesis that socioeconomic factors are important determinants of sex-role differentiation. We began by defining social class in a very global sense, as the general income level of the school the child attended; we found no differences in sex-role differentiation between middle- and lower-income school children. Hartup and Zook (1960), using the same operational definition with 3- and 4-year olds, also failed to find differences.

Perhaps a distinction between social classes made on this basis was too global, such that existing differances had been obscured. With this in mind, as well as for theoretical reasons,

we used a number of more specific variables traditionally related to social class. Although all of these were significantly correlated with income level of school ("social class"), they were not totally redundant with it (Seegmiller, et. al, Note 8). Only one of these variables, whether the father was employed, affected sex-role differentiation in our sample, and this effect was dependent upon the child's age. That there was no difference between the 3-year-old groups might be due to a lack of salience of the father for 3 year olds. This interpretation is supported by the finding in the present study that sex roles were unrelated to father absence or presence, and also by Herzog and Sudia's (1973) conclusion. Biller (1974), Hetherington (1966), and Lynn (1974), however, consider the father to be extremely salient for 3 year olds. That the difference between children with employed and nonemployed fathers increases with age is not surprising, and in fact, fits well with this "salience" interpretation. However, why children whose fathers were unemployed were more masculine at age 4, but less so at age 5 is not clear. The data showed that this was due to the extremely low (feminine) scores of the girls in this group, and not, as one would predict based on theory, to low scores achieved by boys without fathers. Since this cell had the fewest number of subjects, we must issue a caveat in interpreting this result. Most previous work has not examined the relation between whether the father was working per se, and sex-role differentiation; instead, father's occupational status has been studied. This factor did not affect sex-role

differentiation in our sample, or in that of Brown (1956) or Nadleman (1974), but did in the studies of Rabban (1950), Hall and Keith (1964), and Lefkowitz (1962). These inconsistencies might be due to sample differences, to differences among the studies in statistical power, or perhaps, this variable differentially affected boys and girls of different ages as a function of social class (which was not examined here).

The child's sex-role differentiation was also unrelated to maternal employemnt variables. This, in combination with the lack of significant relation with the father variables, indicates that these parental characteristics are not salient for the child's sex-role differentiation during the preschool years, as has been suggested elsewhere (Marantz & Mansfield, 1977; Seegmiller, Note 5, Note 7). To what, then, can we attribute the early and pronounced differences in sex role differentiation which have been demonstrated consistently? The data indicate that sex-role differentiation is most strongly affected by siblings, who have differential effects depending upon their own sex, as well as the sex and/or age of the child. Clearly, being a singleton, having only brothers, only sisters, or both brothers and sisters has an important influence on a child's sex-role learning. Growing up with only brothers tends to result in more rigid stereotyping, regardless of whether you are a boy or a girl, and regardless of the number of brothers you have. On the other hand, having sisters tends to produce the opposite effect: These children, both the boys and the girls, were less rigidly stereotyped, and the greater the number of sisters, the less stereotyping. These findings are relatively easily explained when one considers that boys are more

concerned with avoiding "inappropriate" sex typing than are girls (Gold & Berger, 1978; Hartup, Moore, & Sager, 1963) and therefore might be expected to reinforce such rigid stereotyping in their male and female siblings. The importance of siblings is also supported by the findings that ordinal position, and not surprisingly, number of children in the family influenced sex-role differentiation.

That singletons were as sex typed as children with brothers indicates that different mechanisms may be at work depending upon whether there are siblings. It may be that, when present, siblings have a greater effect on sex-role differentiation than do parents. When there are no siblings, however, parents may be particularly salient. In fact, there is considerable (although not entirely consistent) evidence showing that firstborns and singletons are more sex typed than laterborns; this has most frequently been attributed to intense relations with the parents (Bardwick, 1971; Brown, 1956; MacDonald, 1969).

The findings of this study most readily lend themselves to an explanation of sex-role differentiation that combines social learning and cognitive-developmental principles. That is, such differentiation does occur as a result of cognitive restructuring as Kohlberg (1966) asserts, but the environment plays a greater role in such learning than Kohlberg accorded it. The child's milieu is filled with an incredible amount of information; as the child advances cognitively, he or she is better able to simultaneously make use of more such information. Initially, perhaps

because of the greater similarity between themselves and their siblings, or because of their parents' encouragement of interaction between the siblings, children, being able to handle only a limited amount of information, are more attuned to siblings than to adults. Therefore, their sex-role development might be expected to be related more strongly to sibling than to parental characteristics. This was, in fact, what the data showed. As the child becomes able to handle more information at more advanced developmental levels, parental characteristics might acquire added importance. There is some support for this contention from studies of older children. It may also be that a purely social learning theory explanation might suffice here; siblings may simply distinguish between the sexes more than parents (Maccoby & Jacklin, 1974), but this comparison has bot as yet been studied.

The results presented here add to the growing literature on sex-role differentation in young children. Although the study demonstrates that examining the relationships between sex roles and aspects of the child's environment is fruitful, the necessity for more work is made clear. The present study did not combine these personal, socioeconomic, and sibling variables in one analysis, and that is something which must be done in future studies if the relations between these variables and sex-role differentiation are to be understood. If siblings play such an important role in sex-role differentiation, then the necessity of studying all of the children in a family seems particularly crucial. If sex-role differentiation changes with age, even within the preschool period, longitudinal studyies are needed as well. The present study suggests some important variables to include in such studies.

Reference Notes

1. Garrett, C. S., Cherry, F., Kahn, L., & Diepold, J. H. The effects of age, sex, and adult presence on preschool children's sex-typed toy play behavior. Paper presented at the annual meeting of the American Psychological Association, San Francisco, August, 1977.
2. Suter, B., Seegmiller, B. R., and Dunivant, N. Performance on five sex role tests: Effects of age, sex, and income level. Manuscript submitted for publication, 1978.
3. Goldberg, W. The intercorrelation of measures of sex role identity. Paper presented at the 48th annual meeting of the Eastern Psychological Association, Boston, March, 1977.
4. Smith, C. The development of sex role concepts and attitudes in father-absent boys. Unpublished masters thesis. University of Chicago, 1966.
5. Seegmiller, B. R. Effects of maternal employment on sex role differentiation: A review. Manuscript submitted for publication, 1978.
6. Rodgon, N. N., Grawlewski, C., and Hetzel, J. Maternal attitudes toward sex roles related to children's attitudes toward maternal roles in second and sixth grade children. Paper presented at the meeting of the Society for Research in Child Development, New Orleans, 1977.
7. Seegmiller, B. R. Effects of maternal employment on sex role differentiation in preschoolers. Manuscript submitted for publication, 1978.

8. Seegmiller, B. R., Dunivant, N., & Suter, B. Sex role socialization in the nursery school. Manuscript submitted for publication, 1978.

9. Seegmiller, B. R. Measuring sex role development: A comparison of two methods. Paper presented at the annual meeting of the Eastern Psychological Association, Boston, March, 1977.

10. Hollingshead, A. B. Two-factor index of social position. Unpublished manuscript, 1957.

11. Dunivant, N. Statistical problems in the measurement of sex roles. Paper presented at the 48th annual meeting of the Eastern Psychological Association, Boston, March, 1977.

References

Adorno, T. W., Frenkel-Brunswick, E., Levinson, D. J., & Sanford, R. N. The authoritarian personality. New York: Harper, 1950.

Bach, G. R., Young children's play fantasies. Psychological Monographs, 1945, 59.

Bardwick, J. Psychology of women. New York: Harper Row, 1971.

Baruch, G. K. Maternal influences upon college women's attitudes toward women and work. Developmental Psychology, 1972, 6, 32-37.

Bieliauskas, V. J. Sexual identification in children's drawings of human figure. Journal of Clinical Psychology, 1960, 16, 42-44.

Bigner, J. Sibling influence on sex role preference of young children. Journal of Genetic Psychology, 1972, 121, 271-82.

Bigner, J. Second born's discrimination of sibling role concepts. Developmental Psychology, 1974, 10, 564-73.

Biller, H. A multi-aspect investigation of masculine development in kindergarten-age boys. Genetic Psychology Monographs, 1968, 76, 89-138.

Biller, H. B. Father absence, maternal encouragement, and sex role development in kindergarten-age boys. Child Development, 1969, 40, 539-546.

Biller, H. B. Paternal deprivation. Lexington, Mass.: Lexington Books, 1974.

Blake, J. Population policy for Americans: Is the government being misled? Science, 1969, 164, 522.

Block, J. H. Debatable conclusions about sex differences. Contemporary Psychology, 1976, 21, 517-522.

Borstelmann, L. J. Sex of experimenter and sex typed behavior of young children. Child Development, 1961, 32, 519-524.

Brim, O. G. Family structure and sex role learning by children: A further analysis of Helen Koch's data. Sociometry, 1958, 21, 1-16.

Bronfenbrenner, U. Socialization and social class through time and space. In E. E. Maccoby, T. E. Newcomb, & E. L. Hartley (Eds.), Readings in social psychology. New York: Holt, Rinehart, Winston, 1958, 400-425.

Brown, D. G. Sex role preference in young children. Psychological Monographs 1956, 70(14).

Brown, D. G. Masculinity-femininity development in children. Journal of Consulting Psychology, 1957, 21, 197-202.

Brush, L. R. & Goldberg, W. The intercorrelations of measures of sex role identity. Journal of Child Psychology and Psychiatry, 1978, in press.

Clarkson, F. E., Vogel, S. R., Broverman, I. K., Broverman, D. M., & Rosenkrantz, P. S. Family size and sex role stereotypes. Science, 1970, 167, 390-392.

Cohen, J. Statistical power analysis for the behavioral sciences. (Rev. ed.) New York: Academic Press, 1977.

Cohen, J., & Cohen, P. Applied multiple regression/correlation analysis for the behavioral sciences. Hillsdale, N. J.: Lawrence Erlbaum, 1975.

Davis, O. L. Teacher behavior toward boys and girls during first grade reading instruction. American Educational Research Journal, 1967, 4, 261-270.

Fagot, B. I., & Patterson, G. P. An in vivo analysis of reinforcing contingencies for sex role behaviors in the preschool child. Developmental Psychology, 1969, 1, 563-568.

Fauls, L. B., & Smith, W. D. Sex role learning of five year olds. Journal of Genetic Psychology, 1956, 89, 105-117.

Flerx, V. C., Fidler, D. S., & Rogers, R. W. Sex role stereotypes: Developmental analysis and early intervention. Child Development, 1976, 47, 998-1007.

Freud, S. Three contributions to the theory of sex. In The basic writings of Sigmund Freud. New York: Modern Library, 1938. (Originally published, 1905.)

Gold, D., & Berger, C. Problem solving performance of young boys and girls as a function of task appropriateness and sex identity. Sex Roles, 1978, 4, 183-194.

Gough, H. G. Identifying psychological femininity. Educational and Psychological Measurement, 1952, 12, 427-439.

Gullikser., H. Methods for determining the equivalence of measures. Psychological Bulletin, 1968, 70, 534-544.

Hall, M., & Keith, R. A. Sex role preference among children of upper and lower social class. Journal of Social Psychology, 1964, 62, 101-110.

Hampson, J. L. Determinants of psychosexual orientation. In F. A. Beach (Ed.), Sex and Behavior, New York: Wiley, 1965, 108-135.

Hartley, R. E. Children's concepts of male and female roles. Merrill Palmer Quarterly of Behavior and Development, Winter, 1959, 83-91.

Hartley. R. E. What aspects of child behavior should be studied in relation to maternal employment. In A. E. Siegel (Ed.), Research issues related to the effects of maternal employment on children. University Park, Penn.: Social Science Research Center, 1961.

Hartley, R. E. A developmental view of female sex role definition and identification. Merrill Palmer Quarterly of Behavior and Development, 1964, 10(1), 3-17.

Hartup, W. Peer interaction and the behavioral development of the individual child. In E. Schopler & R. J. Reichler (Eds.), Psychopathology and child development. New York: Plenum, 1976.

Hartup, W. W., Moore, S. S., & Sager, G. Avoidance of inappropriate sex typing by young children. Journal of Consulting Psychology, 1963, 27, 467-473.

Hartup, W. W. & Zook, E. A. Sex role preference in three- and four-year-old children. Journal of Consulting Psychology, 1960, 24, 420-426.

Herzog, E., and Sudia, C. E. Children in fatherless families. In B. M. Caldwell & H. N. Riccutti (Eds.), Review of child development research. Chicago: University of Chicago Press, 1973.

Hetherington, E. M. Effects of paternal absence on sex-typed behaviors in Negro and white preadolescent males. Journal of Personality and Social Psychology, 1966, 4, 87-91.

Hetherington, E. M. Effects of father absence on personality development in adolescent daughters. Developmental Psychology, 1972, 7, 313-326.

Hoffman, L. W. Effects of maternal employment on the child: A review of the research. Developmental Psychology, 1974, 10, 204-228.

Johnson, M. M. Sex role learning in the nuclear family. Child Development, 1963, 34, 319-333.

Jöreskog, K. G. A general model for the analysis of covariance structures. Biometrika, 1970, 57, 239-251.

Jöreskog, K. G. Statistical analysis of sets of congeneric tests. Psychometrika, 1971, 36, 109-133.

Jöreskog, K. G., Gruvaeus, G. T., and van Thillo, M. ACOVS-A general computer program for analysis of covariance structures (RB 70). Princeton, N. J. : E.T.S., 1970.

Katz, L. G., Bowermaster, J., Jacobson, E., & Iessell, L. Sex role socialization in early childhood: An annotated bibliography, 1977. (ERIC Document Reproduction Service No. 170.)

Katz, L. G., Bowermaster, J., Jacobson, E., & Kessell, L. Sex role socialization in early childhood, 1977. (ERIC Document Reproduction Service No. 171.)

Kinsey, A. C., Pomeroy, W. B. & Martin, C. E. Sexual behavior in the human male. Philadelphia: Saunders, 1948.

Koch, H. L. Some personality correlates of sex, sibling position and sex of sibling among five and six-year-old children. Genetic Psychology Monograph, 1955, 52, 3-50.

Koch, H. L. Sissiness and tomboyishness in relation to sibling characteristics. Journal of Genetic Psychology, 1956, 88, 231-244. (a)

Koch, H. L. Attitudes of young children toward their peers as related to certain characteristics of their siblings. Psychological Monographs, 1956, 70 (19, Whole No. 426). (b)

Koch, H. Some emotional attitudes of the young child in relation to characteristics of his sibling. Child Development, 1956, 27, 393-427. (c)

Kohlberg, L. A. A cognitive developmental analysis of children's sex role concepts and attitudes. In E. E. Maccoby (Ed.), The development of sex differences. Stanford, Ca: Stanford University Press, 1966.

Kohlberg, L. and Zigler, E. The impact of cognitive maturity on the development of sex role attitudes in the years four to eight. Genetic Psychology Monographs, 1966, 75.

Laosa, L. M., & Brophy, J. E. Effects of sex and birth order on sex role development and intelligence among kindergarten children. Developmental Psychology, 1972, 6, 409-415.

Lefkowitz, M. M. Some relations between sex role preference of children and other parent and child variables. Psychological Reports, 1962, 10, 43-53.

Lynn, D. B. The process of learning parental and sex role identification. Journal of Marriage and the Family, 1966, 28, 466-470.

Lynn, D. Parental and sex role identification. Berkeley, C : McCutchen, 1969.

Lynn, D. B. The father: His role in child development. Belmont, Ca: Wadsworth Publishing Co., 1974.

Lynn, D. B., & Sawrey, W. L. The effects of father absence on Norwegian boys and girls. Journal of Abnormal Social Psychology, 1958, 59, 258-262.

Maccoby, E. E. Sex differences in intellectual functioning. In E. E. Maccoby (Ed.), The development of sex differences. Stanford, Ca: Stanford University Press, 1966.

Maccoby, E., & Jacklin, C. H. The psychology of sex differences. Stanford, Ca.: Stanford University Press, 1974.

MacDonald, A. Manifestations of differential levels of socialization by birth order. Developmental Psychology, 1969, 3, 485-492.

Marantz, S. A., & Mansfield, A. F. Maternal employment and the development of sex role stereotyping in five-to eleven-year-old girls. Child Development, 1977, 48, 668-673.

Miller, S. M. Effects of maternal employment on sex role perception, interests, and self-esteem in kindergarten girls. Developmental Psychology, 1975, 11, 405-406.

Mischel, W. A social learning view of sex differences in behavior. In E. E. Maccoby (Ed.), The development of sex differences. Stanford, Ca: Stanford University Press, 1966.

Mussen, P. H. Early sex role development. In Goslin (Ed.), Handbook of socialization theory and research. Chicago: Rand McNally, 1969, 707-732.

Nadleman, L. Sex identity in American children: Memory, knowledge and preference test. Developmental Psychology, 1974, 10, 413-417.

Papalia, D. and Tennent, S. Vocational aspirations in pre-schoolers: Manifestations of early sex stereotyping. Sex Roles, 1975, 1, 197-199.

Parsons, T. Age and sex in the social structure of the U. S. American Sociological Review, 1942, 7, 604-616.

Parsons, T. Family structure and the socialization of the child. In T. Parsons & R. Bales (Eds.), Family, socialization and interaction process. Glencoe, Ill.: Free Press, 1965.

Parsons, T. and Bales, R. Family socialization and interaction process. Glencoe, Ill.: Free Press, 1955.

Perloff, R. M. Some antecedents of children's sex role stereotypes. Psychological Reports, 1977, 40, 463-466.

Rabban, M. Sex role identification in young children in two diverse social groups. Genetic Psychology Monographs, 1950, 42, 81-158.

Sanford, N. Changing sex roles, socialization, and education. Human Development Bulletin, 1958, 58-75.

Santrock, J. W. Paternal absence, sex typing and identification. Developmental Psychology, 1970, 2, 264-272.

Schacter, S. The psychology of affilliation. Stanford, CA: Stanford University Press, 1959.

Schell, R. E. & Silber, J. W. Sex role discrimination among young children. Perceptual and Motor Skills, 1968, 27, 379-389.

Sears, P. S. Doll play aggression in normal young children: Influence of sex, age, sibling status, father's absence. Psychological Monographs, 1951, 65, (Whole No. 323).

Sears, R. R., Pintler, M. H., & Sears, S. Effect of father separation on preschool children's doll play aggression. Child Development, 1946, 17, 219-243.

Seavey, C. A., Katz, P., & Zalk, S. R. Baby X: The effects of gender labels on adults' responses to infants. Sex Roles, 1975, 1, 103-110.

Seegmiller, B. R. Measuring sex role development: A comparison of two methods. New York, N. Y.: Hunter College, 1978. (ERIC Document Reproduction Service No. ED144985)

Sutton-Smith, B., Roberts, J. M., & Rosenberg, B. G. Sibling associations and role involvement. Merril Palmer Quarterly of Behavior and Development, 1964, 10, 25-38.

Sutton-Smith, B. & Rosenberg, B. G. Age changes in the effects of ordinal position on sex role identification. Journal of Genetic Psychology, 1965, 107, 61-73.

Sutton-Smith, B. & Rosenberg, B. The sibling. New York: Holt, Rinehart, & Winston, 1970.

Terman, L. Genetic studies of genius (Vol. 1). Stanford, CA: Stanford University Press, 1925.

Terman, L. M. & Miles, C. C. Sex and personality: Studies in masculinity and femininity. New York: McGraw-Hill, 1936.

Thomas, P. J. Subcultural differences in sex role preference patterns. Dissertation Abstracts, 1966, 26, 6894-5. (No. 66-3046)

Thompson, N. L. & McCandless, B. R. IT-score variations by instructional style. Child Development, 1970, 41, 425-436.

Thompson, S. K. Gender labels and early sex role development. Child Development, 1975, 46, 339-347.

Vogel, S. R., Broverman, I. K., Broverman, D. M., Clarkson, E. E., & Rosenkranz, P. S. Maternal employment and perception of sex roles among college students. Developmental Psychology, 1975, 11, 635-642.

Vroegh, K. The relationship to birth order and sex or siblings to gender role identity. Developmental Psychology, 1971, 4, 407-411.

Ward, W. D. Variance of sex role preference among boys and girls. Psychological Reports, 1968, 23, 468-470.

Table 1

Mean Maximally Reliable Sex Role Composite Scores

By Child Sex, Age Group and Descriptive Variable

	Age and Sex					
	Three Year Olds		Four Year Olds		Five Year Olds	
Variable	Males	Females	Males	Females	Males	Females
Peabody Picture Vocabulary						
< 85	.372	-.312	.354	-.286	.546	-.679
85-100	.290	-.422	.438	-.297	.425	-.678
100-114	.551	-.420	.491	-.536	.498	-.574
115 >	.382	-.398	.548	-.636	.689	-.617
Mean [a]	.402	-.384	.464	-.441	.563	-.633
Social Class						
Lower	.438	-.395	.436	-.340	.552	-.724
Middle	.371	-.375	.500	-.488	.584	-.547
Mean	.404	-.386	.464	-.396	.565	-.643
Child Ethnicity						
White	.419	-.371	.505	-.494	.604	-.607
Black	.319	-.421	.383	-.351	.519	-.623
Other	.564	-.306	.521	-.326	.553	-.843
Mean	.402	-.385	.462	-.415	.564	-.633
Intact Family						
No	.431	-.347	.396	-.427	.526	-.602
Yes	.386	-.430	.520	-.403	.602	-.664
Mean	.402	-.385	.462	-.415	.564	-.633

Table 1 (Cont.)

Mean Maximally Reliable Sex Role Composite Scores

By Child Sex, Age Group and Descriptive Variable

	Age and Sex					
	Three Year Olds		Four Year Olds		Five Year Olds	
Variable	Males	Females	Males	Females	Males	Females
Mother Employed?						
Unemployed	.409	-.434	.436	-.467	.508	-.532
Employed	.396	-.344	.483	-.397	.586	-.701
Mean	.402	-.385	.462	-.424	.567	-.625
Father Employed?						
Unemployed	.380	-.425	.576	-.219	.520	-.992
Employed	.384	-.447	.494	-.493	.640	-.513
Mean	.383	-.421	.510	-.443	.628	-.627
Mother's Occupation						
Profession	.416	-.422	.471	-.315	.663	-.648
White/Blue Collar	.453	-.360	.477	-.420	.545	-.688
Skilled, etc.	.347	-.346	.509	-.467	.616	-.784
Mean	.420	-.369	.483	-.388	.584	-.696

Table 1 (Cont.)

Mean Maximally Reliable Sex Role Composite Scores

By Child Sex, Age Group and Descriptive Variable

	Age and Sex					
	Three Year Olds		Four Year Olds		Five Year Olds	
Variable	Males	Females	Males	Females	Males	Females
Father's Occupation						
Profession	.374	-.384	.434	-.478	.623	-.517
White/Blue Collar	.570	-.323	.596	-.424	.668	-.714
Skilled	.366	-.633	.570	-.662	.618	-.343
Mean	.415	-.421	.498	-.497	.640	-.539
Number of Brothers						
0	.416	-.343	.442	-.450	.540	-.633
1	.224	-.468	.498	-.365	.622	-.623
2 or more	.567	-.965	.429	-.275	.616	-.644
Mean	.402	-.385	.462	-.415	.564	-.633
Number of Sisters						
0	.470	-.398	.483	-.484	.550	-.650
1	.256	-.307	.455	-.270	.752	-.641
2 or more	.260	-.536	.229	-.157	.207	-.389
Mean	.402	-.385	.462	-.415	.564	-.633

Table 1 (Cont.)

Mean Maximally Reliable Sex Role Composite Scores

By Child Sex, Age Group and Descriptive Variable

	Age and Sex					
	Three Year Olds		Four Year Olds		Five Year Olds	
Variable	Males	Females	Males	Females	Males	Females
Sibling Sex						
Only Child	.502	-.340	.433	-.415	.525	-.669
Only Brothers	.390	-.598	.583	-.532	.640	-.613
Only Sisters	.126	-.349	.503	-.381	.567	-.432
Brothers and Sisters	.448	-.356	.058	-.177	.623	-.724
Mean	.402	-.385	.462	-.415	.564	-.633
Total Number of Children						
1	.502	-.340	.399	-.514	.525	-.669
2	.200	-.420	.556	-.371	.635	-.552
3 or more	.408	-.544	.273	-.196	.535	-.656
Mean	.402	-.385	.462	-.415	.564	-.633
Ordinal Position						
First Born	.472	-.364	.471	-.468	.534	-.720
Second Born	.158	-.417	.520	-.324	.718	-.473
Third or later	.488	-.464	.290	-.277	.570	-.465
Mean	.402	-.385	.462	-.415	.564	-.633

[a]This is the weighted mean of the composite, that it, this mean was computed by summing composite scores across all subjects ignoring group classifications and dividing the number of subjects with nonmissing composite scores.

Table 2

Summary of ANOVA's[a] of Maximally Reliable Composite Mean Sex Role Scores

By Child Sex by Age Group by Personal, Socioeconomic, and Sibling Influences

Independent Variable (C)		Sex (A)	Age (B)	Independent Variable (C)	AxB[a]	AxC	BxC	AxBxC	Residual Mean Sq.	Total
Personal										
Peabody IQ	F	512.888***	0.838	0.466	4.983**	2.430	0.939	0.942	0.168	
	df	1	2	3	2	3	6	6	368	391
Socioeconomic										
Social Class	F	515.712***	1.063	0.034	9.325***	0.004	1.134	1.708	o.173	
	df	1	2	1	2	1	2	2	390	402
Ethnicity	F	507.102***	0.790	1.330	9.333***	1.167	0.813	0.453	0.170	
	df	1	2	2	2	2	4	4	385	402
Intact	F	520.530***	0.884	0.927	8.534***	1.176	0.930	0.121	0.170	
Family?	df	1	2	1	2	1	2	2	391	402
Mother	F	514.747***	0.706	0.470	8.688***	0.064	0.769	1.390	0.170	
Employed?	df	1	2	1	2	1	2	2	387	392
Father	F	372.618***	0.357	1.630	4.921**	0.077	4.668***	1.231	0.172	
Employed?	df	1	2	1	2	1	2	2	245	256

Table 2 (cont.)

Summary of ANOVA's of Maximally Reliable Composite Mean Sex Role Scores

By Child Sex by Age Group by Personal, Socioeconomic, and Sibling Influences

Independent Variable (C)		Sex (A)	Age (B)	Independent Variable (C)	AxB	AxC	BxC	AxBxC	Residual Mean Sq.	Total
Status of Mother's Occupation	F	394.605***	1.135	0.394	8.653***	0.020	0.223	0.314	0.152	
	df	1	2	2	2	2	4	4	236	253
Status of Father's Occupation	F	297.854***	0.353	0.512	2.806	0.939	0.838	0.654	0.177	
	df	1	2	2	2	2	4	4	196	213
Sibling										
Total Number of Brothers	F	524.488***	0.891	0.094	8.387***	0.893	1.078	1.215	0.170	
	df	1	2	2	2	2	4	4	385	402
Total Number of Sisters	F	533.719***	0.873	0.533	8.070***	3.260*	0.549	1.766	0.167	
	df	1	2	2	2	2	4	4	385	402
Sibling Constellation[a]	F	481.946***		1.048		1.727			0.173	
	df	1		13					379	401

Table 2 (cont.)

Summary of ANOVA's of Maximally Reliable Composite Mean Sex Role Scores

By Child Sex by Age Group by Personal, Socioeconomic, and Sibling Influences

Independent Variable (C)		Sex (A)	Age (B)	Independent Variable (C)	AxB	AxC	BxC	AxBxC	Residual Mean Sq.	Total
Sibling Sex	F	542.252***	0.856	0.357	8.387***	3.197*	2.744**	1.048	0.164	
	df	1	2	3	2	3	6	6	379	402
Number of Children	F	535.443***	0.818	0.522	9.104***	0.386	2.644*	1.965	0.166	
	df	1	2	2	2	2	4	4	385	402
Ordinal Position	F	532.628***	0.874	0.092	9.421***	1.648	2.870*	0.956	0.166	
	df	1	2	1	2	2	4	4	385	402

Note 1: Residual and Total df's differ from variable to variable due to nonavailable information

Note 2: The entries within each of the columns labeled sex(A), age (B), and AXB are very similar. Differences within each of these three columns resulted in part from differing N's from analysis to analysis, but mainly from using an ANOVA solution that adjusted the age, sex, and age x sex effects for the effects of the new independent variable in each analysis.

[a]SPSS ANOVA option was used.
[b]A two-way factorial ANOVA(2 (sex) x 14(sibling constellation) was used here due to the numerous levels of this variable. Adding age as a factor would have resulted in numerous cells with "0" frequencies.

*p < .05
**p < .01
***p < .110